City of North Las Vegas, Nevada

Local Limits

Final Draft for EPA Review

November 23, 2015

City of North Las Vegas, Nevada
Industrial Pretreatment Program
Local Limits Revision

A. Purpose

The General Pretreatment Regulations (40 CFR Part 403) require that each Publicly Owned Treatment Works (POTW) with a pretreatment program develop and enforce Technically-Based Local Limits (TBLLs) which will establish the maximum loading of pollutants that can be accepted from industrial users without causing a violation of applicable environmental standards. Local limits are developed and enforced to prevent Pass Through, Interference, protect sludge disposal practices and prevent impacts to the health and safety of workers (40 CFR sections 403.2 and 403.5(c)(1)). The City of North Las Vegas (City) used the EPA July 2004 Local Limits Development Guidance (EPA 833-R-04-002A) as a framework for establishing limits to protect the POTW and environment (40 CFR 403.8(f)(4)). The City has an on-going pollutant monitoring program and permit which required sampling as specified in its National Pollutant Discharge Elimination System (NPDES) Permit (NV0023647) issued to the City of North Las Vegas Water Reclamation Facility (WRF). The State of Nevada has not been authorized to implement and enforce the Industrial Pretreatment Program under 40 CFR Part 403. EPA is the Approval Authority for the Pretreatment Program. The City is updating local limits pursuant to the requirements specified in the EPA Pretreatment Compliance Inspection Report dated March 6, 2015, and as required in an Administrative Order dated June 26, 2015. EPA and the City had conference call on September 15, 2015, based upon comments made by the City's Consultant in an email dated August 28, 2015, that requested the technical basis for guidance included in the Administrative Order (see Attachment 1 to this Submittal).

B. Municipal Organization

The City serves a population of approximately 230,788. The City has a Mayor and City Council form of government. The Mayor and City Council oversee the City Manager. The City Manager oversees the Department Directors. The Pretreatment Program is in the Utilities Department and this department is managed by the Director of Utilities. The WRF Operations Supervisor reports to the Director of Utilities and oversees the Pretreatment Program. The Pretreatment Program Coordinator (vacant) reports directly to the WRF Operations Supervisor. The Pretreatment Program staff are located at the Water Reclamation Facility.

Changes to the Pretreatment Program legal authority (City Code, 13.28) is initiated by the WRF Operations Supervisor with concurrence of the Director of Utilities. Review of draft changes are done within the Utilities Department. When there is a proposed change to a City Code, the draft language is provided to the City Attorney for review subsequent to management and staff review. The Utilities Department briefs the Mayor, City Manager and other departments, as appropriate. After review is completed by the City, the final draft submittal is sent to EPA for informal review. The City coordinates with EPA to resolve any issues that would interfere with processing the changes as a substantial modification to its Pretreatment Program and as a minor modification to the City's NPDES Permit. Once the EPA informal review is completed, the City Council conducts a first reading. Subsequent to the first reading, the City submits the changes to EPA with an attorney's statement requesting approval. EPA public notices the proposed changes for at least 30 days in a newspaper of general circulation that provides meaningful public notice serving the City and other jurisdictions. During the EPA public

comment period, the City will generally complete a second reading. After the EPA 30 day public comment period, EPA and the City will approve the changes to the Ordinance. The Mayor signs the final Ordinance.

C. Description of POTW(s)

The City of North Las Vegas Water Reclamation Facility (WRF) is an advanced wastewater treatment facility designed to treat an average daily flow of 25 MGD and a peak hourly flow rate of 50 MGD. The WRF treats wastewater from the City of North Las Vegas to meet NDEP permit requirements for discharging into public waters. Wastewater flows by gravity into the WRF via the Southeast Interceptor. WRF process units include the Headworks Facility (HWF) which contains all the preliminary treatment for the WRF. Preliminary treatment includes coarse screening, influent pumping, grit removal, and fine screening. The wastewater then flow to the Membrane Bioreactor (MBR). The purpose of the bioreactor basins is two-fold. One function is to oxidize the biochemical oxygen demand (BOD) in the screened and degritted raw sewage by maintaining a biological (growing microorganisms) population within the basins to convert organic waste into a settleable (filterable) cell mass. The second function is to provide an environment that reduces the influent nitrogen and phosphorus levels to meet the discharge standards.

The biological treatment is performed in six parallel bioreactor basins. Each basin is divided into a series of zones, isolated from each other by submerged baffle weir walls. The configuration and sizing of these zones is based on the basic principles of biological nutrient removal, using a configuration adapted for use in MBRs that optimizes the enhanced biological removal of nitrogen and phosphorus while recognizing the unique differences in the quality and flow of return activated sludge (RAS) in MBR systems.

The zones within the MBR system include: pre-anoxic, anaerobic, anoxic, and aerobic zones. The primary purpose of the pre-anoxic zone is to reduce dissolved oxygen and nitrate concentrations prior to the RAS entering the anaerobic zone. The purpose of the anaerobic zone is to create conditions that promote the release of phosphorus by polyphosphate-accumulating organisms, resulting in a maximal increase in the soluble phosphorus concentration. The purpose of the anoxic zone is to reduce nitrate concentrations. The purpose of the aerobic zones is to provide conditions that permit aeration of a high mixed liquor concentration, oxidize BOD in the bioreactor influent (BI) feed stream, convert influent ammonia to nitrate, and uptake phosphorus.

Disinfection of the wastewater to meet limits is accomplished at the Chlorine Contact Basins (CCBs). Membrane permeate enters the chlorine contact basin via one of two 36-inch pipes from the MBR system. Chlorine solution is injected into the 48-inch CCB influent pipe upstream of a jet mixing system to ensure even distribution of chlorine throughout the CCB influent. Chlorine residual is monitored at both the upstream end of the CCB and the downstream end. Any residual chlorine in the effluent discharged to the Wash is dechlorinated using sodium bisulfite. Recycled water for reuse will receive an additional chlorine dose if needed prior to discharge to the customers. Effluent for plant water will be withdrawn after dechlorination. The CCB's are sized to disinfect peak flow should one basin be taken out of service.

Disinfected wastewater is used for plant utility water, reuse water (none sent off site currently) or is discharged to the Las Vegas Wash (LVW) as allowed by the City's NPDES permit. Wastewater flows over weirs into an effluent box and gravity flows to the LVW. The flow rate of water discharging to the Wash is measured by a magnetic flow meter on the discharge pipe.

The Solids Handling Facility removes water from scum and waste activated sludge (WAS) collected from the membrane bioreactors prior to solids disposal. This is done in two steps, thickening followed by dewatering. The thickening and dewatering equipment are designed to remove excess water from the solids in an effort to reduce the volume and weight of waste transported to a nearby landfill. The solids thickening equipment consists of Gravity Belt Thickeners (GBT). WAS pumped from the membrane bioreactor to the Solids Handling Facility is discharged onto the GBT's rotating belt. The belt is porous and allows water to pass through via gravity, which is then collected and drained back to the headworks for treatment. The remaining thickened waste activated sludge (TWAS) is then collected in a tank and pumped to the next step, dewatering.

The dewatering equipment consists of horizontal bowl centrifuges. The TWAS is pumped into the centrifuges where it is rotated at high speeds to centrifugally separate water from the solids that could not be separated via gravity. The separated water is collected and transported back to the facility's headworks for treatment. The remaining solids, also referred to as cake, are collected below the centrifuge, and conveyed to the cake load-out hoppers. The cake is stored in the fully enclosed, odor controlled hoppers prior to being loaded and hauled to a landfill for disposal. The sludge meets all standards for landfilling of solid waste.

Odor control captures, conveys and treats odorous compounds present in the air that are released during the wastewater treatment process. The odor control system is designed to remove the main odor causing compounds found at wastewater treatment plants such as hydrogen sulfide, methyl mercaptan and di-methyl sulfide. These compounds are detectible to humans at low concentrations and produce a distinct odor associated with wastewater treatment plants, while at higher concentrations they can be hazardous to humans and animals. The odor control system is designed to remove these compounds from the air to levels below which will not result in undesirable odors detectible outside of the facility. The odor control system for the WRF consists of two facilities. The first is for treatment of odors generated at the Headworks and Solids Handling Facilities, and utilizes a Granular Activated Carbon (GAC) system to remove the odorous compounds from the air stream. The second system is design to treat the odorous air generated at the MBR by atmospheric dispersion, through which the air is dispersed to a high elevation and diluted in the atmosphere.

The WRF site is designed to accommodate a future expansion of 25 MGD average daily flow by duplicating the existing facilities.

Receiving Water:

The POTW discharges to the Las Vegas Wash. The City can also discharge to the Sloan Flood Control Channel which is a concrete structure that discharges to the Las Vegas Wash. The receiving water has specific Standards established by the State (NAC 445A.198 and 445A.199). Protected uses include non-contact recreation, irrigation, livestock and freshwater marsh, wildlife and non-fish propagation. State Standards for Toxics are listed in NAC 445A.1236.

NPDES Permit Required Monitoring Frequency for Pollutants Relevant to the Local Limits Study

Pollutant	NPDES Permit (covers outfalls 001 and 002)	
	Influent	Effluent
Flow, Effluent	Continuous	Continuous
Pretreatment: Priority Pollutants (Section B.PT.1.2.1.)	1 per year	1 per year
Pretreatment: Detected Pollutants (B.PT.1.2.1.)	1 per quarter	1 per quarter
Pretreatment: Sludge (B.PT.1.2.1.)	1 per year	1 per year
Pretreatment: Sludge Detected (B.PT.1.2.1.)	1 per quarter	1 per quarter
NPDES Priority Pollutants		1 per quarter
Ammonia		1 per day
Biochemical Oxygen Demand (BOD_5), effluent	1 per day	1 per day
Nitrate+Nitrite		1 per week
Nitrogen, Inorganic, Total		1 per week
Orthophosphate		1 per day
Phosphorus		1 per day
Total Dissolved Solids (TDS)		1 per week
Total Kjeldahl Nitrogen		1 per week
Total Suspended Solids (TSS)	1 per day	1 per day

The NPDES permit contains a Wasteload Allocation Table for Phosphorus and Ammonia-Nitrogen.

D. Other Municipal/County/State Contributors

The City has industrial user discharges that discharge to the City wastewater collection system and the wastewater is ultimately treated by the Clark County Water Reclamation District.

E. Significant Industrial Users

The City currently permits 28 Significant Industrial Users (SIUs) also known as Class I Industrial Users. In the current local limits evaluation, the City has developed limits for SIUs and has included flow to allow the City to apply limits to select non-Significant Industrial Users (non-SIUs). These non-SIUs will be permitted and limits applied at the discretion of the City. Currently, the City has not identified any non-SIUs where local limits would be applied. The City decision to establish local limits for Class I SIUs and other non-SIUs is being done consistent with the 2004 EPA Local Limits Guidance and 40 CFR Section 403.18(b)(2).

F. Local Limits Process

Local limits are those concentrations or loadings of pollutants that a POTW can accept and prevent Pass Through, Interference, adverse health effects, or a violation of the General and Specific Prohibitions. These limits are adopted by the POTW into their legal authority and apply at the point of discharge from the industrial user into the sewerage system. Local limits are Pretreatment Standards and are based on the Maximum Allowable Headworks Loading (MAHL).

The first step of the process is to review and compile data, supplementing data with additional monitoring where necessary. The POTW develops a list of Pollutants of Concern (POC) to further evaluate. When the final Pollutants of concern are identified, the POTW uses applicable standards and flows to calculate all applicable Allowable Headworks Loading (AHL) for each Standard. The POTW then uses the most stringent AHL, the MAHL, in calculating local limits.

To calculate the MAIL (or local limit), the POTW subtracts out an EPA recommended Safety Factor and a growth factor if the City believes growth will be at such as level as to justify an additional set aside. The POTW then subtracts out domestic+commercial loadings to obtain the Maximum Allowable Industrial Load (MAIL), which is the regulatory number that EPA approves pursuant to 40 CFR Section 403.18(b). If the City is adopting uniform concentration-based local limits, the City may set aside some of the MAIL for expansion of existing industrial users or new industrial users. This "set aside" is at the full discretion of the POTW and may be implemented without further notice to EPA as long as the approved MAIL does not change (see 40 CFR Section 403.18 and the 2004 EPA Local Limits guidance manual). The City may adopt uniform concentration limits, the MAIL the adjusted MAIL or a combination of these.

An example local limits calculation is shown in Attachment 2.

G. Legal Authority Language

Existing Code Language: The City is revoking and re-adopting a new 13.28 for Local Limits that contains all Pretreatment Program Standards and requirements. This activity is separate from the local limits study, but occurring simultaneously.

New Code Language:

Section 13.28 Limitations on Wastewater Strength

C. Specific Discharge Limitations

1. No Class I Significant Industrial User (SIU) or other designated non-SIU shall discharge or cause to be discharged wastewater that exceeds the following limits:

Pollutant[(a)]	Daily Maximum Discharge Limit (mg/L)
Arsenic	0.45
Cadmium	0.036
Chromium	5.10
Copper	1.19
Lead	0.20

Mercury	0.012
Nickel	1.21
Selenium	0.21
Silver	1.56
Zinc	6.4
5-Day Biochemical Oxygen Demand (BOD_5), lbs/day [(b)(c)]	39,979
Total Suspended Solids (TSS), lbs/day[(b)(c)]	61,621
Phosphorus, lbs/day[(b)]	870

(a) All Pollutants as Total and in mg/L unless otherwise specified.

(b) These limits are the total mass in pounds per day (lbs/day) that are available to allocate to all Significant Industrial Users and other Permitted Industrial User identified by the City. Allocations are at the sole discretion of the City.

(c) Discharges containing BOD_5 or TSS concentrations over that of Normal Domestic Strength Wastewater may be surcharged.

2. The City may, at its sole discretion, implement local limits through allocation of the Maximum Allowable Industrial Load (MAIL) to Significant Industrial Users and correspond to the uniform concentration local limits shown in the table above. The MAILs that correspond to the Daily Maximum Discharge Limits are hereby incorporated by reference.

3. The following limits shall apply to wastewaters that are discharged from the groundwater cleanup of petroleum or gasoline underground storage tanks or other remediation wastewaters containing these pollutants or where these pollutants are appropriate surrogates. It shall be unlawful for any Industrial User to discharge or cause to be discharged any waste or wastewater that exceeds the following limits, as applicable.

Pollutant[(a)(c)]	Daily Maximum Limit (mg/L)
Benzene	0.050
BTEX[(b)]	0.750

(a) All pollutants shown in the Table are total.

(b) BTEX shall be measured as the sum of Benzene, Ethylbenzene, Toluene and Xylenes.

(c) These limits are based upon installation of air stripping technology as described in the EPA document: "Model NPDES Permit for Discharges Resulting from the Cleanup of Gasoline Released from Underground Storage Tanks. June 1989."

H. Pollutants of Concern (POC) Evaluation Criteria

The following criteria/data considerations were used to evaluate the POC pollutants consistent with the 2004 EPA Local Limits Guidance:

1. Pollutants of Concern established by EPA, including Arsenic, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Selenium, Silver, Zinc, BOD_5, Total Suspended Solids, Ammonia and Phosphorus. In addition, the following Local Limits were previously adopted by the City: Barium, Beryllium, Chromium (VI), Oil and Grease (mineral or petroleum), Oil and Grease (animal or vegetable), Organophosphorus or carbamate compounds, pH and Phenols. The City cannot identify the technical basis for the previous local limits that were approved by EPA to apply to all industrial users. The local limits appear to have been intended to apply to Significant Industrial Users.

2. Data review of POTW influent, effluent and sludge data (organics, metals and conventional pollutants).

3. POTW influent/effluent Priority Pollutant analyses, as required by the NPDES permit were reviewed.

4. Permit limited pollutants were reviewed and included in the sampling program, as appropriate (e.g. BOD, TSS, Phosphate, Ammonia).

5. Water Quality Standards as specified at NAC 445A.1236.

6. Inhibition was evaluated. However, no inhibition has been experienced and based upon operations and influent sampling is not expected to be an issue. Consistent with the 2004 EPA Local Limits guidance, site-specific inhibition studies were not conducted.

7. Sludge was evaluated. However, the City landfills sludge and no Standards under 40 CFR Part 503 apply. No violations of solid waste disposal requirements, including the paint filter test and Toxicity Characteristic Leaching Procedure, have been identified as reported to the State of Nevada under the NPDES permit.

8. Pollutants that may cause adverse worker health and safety effects were evaluated. No pollutants were identified in sampling results that were an acute threat to worker health and safety.

9. Trucked and Hauled Waste. The POTW does not accept trucked and hauled waste.

The initial pollutants that were detected and considered potential Pollutants of Concern are shown below and reflect those pollutants recommended by EPA, of concern to the City or otherwise detected in POTW influent or effluent sampling. As allowed for in 40 CFR 403.8(f)(4) and consistent with the 2004 Local Limits Guidance, the City is evaluating some of the pollutants for the need for local limits as noted. Note: Pollutants not shown on the table had all POTW influent and effluent measurements <RL.

Pollutant	Pollutant of Concern?	Comments
Flow	No	The POTW discharges within limits established by the State. The average POTW influent flow was 17.3 mgd (max 20.1 mgd). The NPDES permits allows for up to 25 mgd.
2-Butanone (MEK)	No	No applicable Standards. 6 of 8 POTW effluent measurements <RL.
3&4-Methylphenol	No	No applicable Standards. 5 of 6 POTW effluent measurements <RL.
4-methyl-2-pentanone (MIBK)	No	No applicable Standards. 8 of 8 POTW effluent measurements are <RL.
4-Methylphenol (p-Cresol)	No	No applicable Standards. 5 of 6 POTW effluent measurements <RL.
Acetone	No	No applicable Standards. 6 of 8 POTW effluent measurements are <RL.
Ammonia	No	The average POTW effluent is 0.184 mg/L (25 lbs/day). The NPDES Permit allows 87 lbs/day (most stringent limit). The POTW will continue to evaluate SIUs for this pollutant.
Arsenic, Total	Yes	EPA Recommended. 18 of 19 influent measurements <RL and 18 of 20 effluent measurements <RL
Barium	No	No applicable Standards. Technical basis for previous local limit unknown.
Benzyl Alcohol	No	No applicable Standards.
Beryllium	No	All POTW effluent measurements <RL. No applicable Standards. Technical basis for previous local limit unknown.
bis(2-ethylhexyl)phthalate	No	17 of 18 POTW effluent measurements <RL. No applicable Standards.
BOD_5	POTW Discretionary	The POTW is in full compliance with all effluent limits. The POTW BOD_5 design is 82,566 lbs/day. The POTW influent monitoring data averages 44,898 lbs/day or 54% of the design. The City had established a surcharge limit in previous Ordinance.
Boron	No	Maximum effluent concentration is 0.32 mg/L or 43% of the most stringent applicable Standard.
Bromodichloromethane	No	No applicable Standard. Generally a byproduct of chlorination. The City has not identified this as a pollutant discharged by SIUs.
Cadmium, Total	Yes	EPA Recommended. 17 of 19 influent measurements <RL and 20 of 20 effluent measurements <RL.
Chlorodibromomethane	No	No applicable Standard. A byproduct of chlorination. The City has not identified this as a pollutant discharged by SIUs.

Pollutant	Pollutant of Concern?	Comments
Chloroform	No	A byproduct of chlorination. No IU identified as being a source. Maximum influent concentration is 0.03 mg/L or 50% of the fume toxicity value. Average influent is 0.011 mg/L or 18% of the fume toxicity value. The City has not identified this as a pollutant discharged by SIUs.
Chloromethane	No	No applicable Standard. All effluent measurements <RL.
Chromium(VI), Dissolved	No	All effluent measurements <RL. No identified IU sources. Technical basis for previous local limit not known.
Chromium, Total	Yes	EPA Recommended. 15 of 19 influent measurements <RL and 20 of 20 effluent measurements <RL.
Copper, Total	Yes	EPA Recommended. 19 POTW influent measurements were >RL. 18 of 20 POTW effluent measurements were <RL. POTW influent Copper concentrations are typically driven by raw water source water that causes Copper to leach from pipes. The City will continue to regulate this pollutant.
Cyanide	No	17 of 19 influent measurements are <RL. No industrial user has been identified as using or discharging Cyanide. 13 of 20 effluent measurements are <RL. Commonly formed in the wastewater treatment process.
Fluoride	No	Effluent averages 58% of the applicable Standard. Source is drinking water.
Iron	No	Effluent averages 4% of the applicable Standard.
Lead, Total	Yes	EPA Recommended. 16 of 19 POTW influent measurements <RL and 20 of 20 POTW effluent measurements <RL.
Mercury, Total	Yes	EPA Recommended. 11 of 19 POTW influent measurements <RL and 17 of 17 effluent measurements <RL. Anticipate State will be requiring more sensitive test methods and EPA will promulgate Dental Categorical Standards.
Molybdenum, Total	No	Landfills sludge. POTW effluent is <1% of the Chronic WQS.
Nickel, Total	Yes	EPA Recommended. 17 of 19 POTW influent measurements <RL and 19 of 20 POTW effluent measurements <RL.
Nitrate+Nitrite	No	No applicable Standard. Not identified by State as a pollutant of concern.
N-Nitroso-dimethylamine	No	No applicable Standard. The City has not identified this as a pollutant discharged by SIUs.
N-Nitrosodi-N-propylamine	No	No applicable Standards. The City has not identified this as a pollutant discharged by SIUs.
Oil and Grease, Animal or vegetable	No	City has moved previous local limit of 250 mg/L to the Specific Prohibitions. POTW effluent average 1.1 mg/L. The City uses its FOG Program to control Oil and Grease where needed.

Pollutant	Pollutant of Concern?	Comments
Oil and Grease, Mineral or Petroleum	No	City has moved previous local limit of 100 mg/L to the Specific Prohibitions. The City has not identified Petroleum Oil and Grease as a problem in the POTW influent or effluent (visual). The City uses its sand/oil separator program to control Petroleum based Oil and Grease where needed.
Organophosphorus or carbamate compounds	No	City has not identified any specific pollutants falling into these categories that are of concern. No applicable Standards. Technical basis for previous local limit unknown.
Phenol	No	Maximum POTW effluent is 0.012 mg/L. No applicable Standard. Technical basis for previous local limit unknown.
Phosphorus	Yes	TMDL of 30 lbs per day (0.2 mg/L) in NPDES Permit is a long term average. POTW averages 0.16 mg/L. The City had established a surcharge limit in previous Ordinance.
Phosphorus - Ortho	No	No applicable Standard.
Selenium, Total	Yes	EPA Recommended. 16 of 19 POTW influent measurements <RL and 18 of 19 POTW effluent measurements <RL.
Silver, Total	Yes	EPA Recommended. 17 of 19 POTW influent measurements <RL and 20 of 20 POTW effluent measurements <RL.
TDS	No	POTW has adopted a reporting requirement and source identification requirement for Class I SIUs and other designated IUs discharging >1200 mg/L. POTW effluent averages 887 mg/L or 47% of the annual average Standard.
TKN	No	No applicable Standard. See Ammonia.
Total Inorganic Nitrogen	No	No applicable Standard. See Ammonia.
Total Suspended Solids (TSS)	POTW Discretionary	The POTW is in full compliance with all effluent limits. The POTW TSS design is 89,445 lbs/day. The POTW influent monitoring data averages 46,198 lbs/day or 52% of the design. The City had established a surcharge limit in previous Ordinance.
Zinc, Total	Yes	EPA Recommended. POTW effluent measurements (n=20) showed an average of 0.058 mg/L. This is 15% of the most stringent Standard (0.388 mg/L – Chronic Aquatic Life).

I. Wastewater Treatment Plant Data Summaries for Local Limits

POTW Flow for Local Limits (mgd)	18.45	POTW average influent flow (17.3 mgd) - 0.123 mgd (on-site evaporation) – 2.142 mgd (average SIU flow) + 3.432 mgd (SIU+IU Permitted flow). Design Flow = 25 mgd
Average SIU Flow	2.142	Average SIU Flow
Permitted SIU Flow for Local Limits (mgd):	3.412	
Flow for Permitted Non-SIU Industrial Users (mgd)	0.020	This is the flow included in the local limits evaluation and available for Non-SIUs where the City opts to apply local limits through certain Class 2 permits.
Total SIU + Other Non-SIU Flows for Local Limits:	3.432	
Combined plus Domestic + Commercial Flow (mgd):	15.16	17.3 mgd – 2.142 mgd (average SIU flow)
Trucked and Hauled Wastewater Flow (mgd):	0	Does not take hauled waste.
I&I / Stormwater / Other:	0	
SIU Permitted Flow not being discharged but allocated through permits (mgd):	1.45	
Sludge Flow to Disposal (mgd):		Landfill
Acute (mgd):	0	
Chronic (mgd):	0	
Agriculture Flow (mgd):	0	
Irrigation Flow (mgd):	0	
Hardness for Metals Calculations (mg/L):	400	State WLA

The POTW flow for local limits reflects the actual POTW wastewater flow, including reuse flows, plus the flow that is authorized for industrial users through the industrial user permitting process (SIUs) or that the City is including for non-SIUs. The City has not currently identified any non-SIUs where the City intends to permit and apply local limits. In the calculation, average industrial user flows for SIUs are subtracted out.

North Las Vegas Applicable Standards Pollutant	POTW Design lbs/day	NAC 445A.1236 Acute WQS mg/L	NAC 445A.1236 Chronic WQS mg/L	445A.1236 Irrigation mg/L	445A.1236 Livestock mg/L	445A.199 State Existing Quality mg/L
Arsenic		0.34	0.15	0.1	0.05	
Cadmium		0.0087	0.0008	0.01		
Chromium (Total)		5.7633	0.2682	0.10	1	
Copper		0.0517	0.0306	0.2	0.5	
Lead		0.4768	0.0186	5.0	0.1	
Mercury		0.0014	0.00		0.01	
Nickel		1.5159	0.1685	0.2000		
Selenium		0.02	0.05	0.02	0.05	
Silver		0.0411				
Zinc		0.3878	0.3878	2.0000	25	
BOD_5	82566					
TSS	89445					
Phosphorus	1900					0.2

North Las Vegas Pollutant	Average POTW Influent mg/L	Comment and Notes	RL Handling	Average POTW Flow mgd	POTW Influent lbs/day
Arsenic	0.0025	n=19, 18<RL	½ RL	17.3	0.361
Cadmium	0.0006	n=19, 17<RL	½ RL	17.3	0.087
Chromium (Total)	0.003	n=19, 15<RL	½ RL	17.3	0.433
Copper	0.151	n=19, 0<RL	N/A	17.3	21.800
Lead	0.0017	n=19, 16<RL	½ RL	17.3	0.245
Mercury	0.000068	n=19, 11<RL	½ RL	17.3	0.009817
Nickel	0.006	n=19, 17<RL	½ RL	17.3	0.866
Selenium	0.0025	n=19, 16<RL	½ RL	17.3	0.361
Silver	0.0023	n=19, 17<RL	½ RL	17.3	0.332
Zinc	0.24	n=19, 1<RL	½ RL	17.3	34.648
BOD5	348	n=952, 0<RL	N/A	17.3	50240
TSS	495	n=956, 0<RL	N/A	17.3	71462
Phosphorus	8.6	n=956, 0<RL	N/A	17.3	1241.6

North Las Vegas Pollutant	Average POTW Effluent mg/L	Comment and Notes	RL Handling	Average POTW Flow mgd	POTW Effluent lbs/day
Arsenic	0.0020	n=20, 18<RL	½ RL	16.5	0.275
Cadmium	0.00060	n=20, 20<RL	½ RL	16.5	0.083
Chromium (Total)	0.0026	n=20, 20<RL	½ RL	16.5	0.358
Copper	0.0232	n=20, 18<RL	½ RL	16.5	3.194
Lead	0.00260	n=20, 20<RL	½ RL	16.5	0.358
Mercury	0.0001	n=17, 17<RL	½ RL	16.5	0.013779
Nickel	0.0056	n=20, 19<RL	½ RL	16.5	0.771
Selenium	0.00240	n=19, 18<RL	½ RL	16.5	0.330
Silver	0.00260	n=20, 20<RL	½ RL	16.5	0.358
Zinc	0.058	n=20, 1<RL	½ RL	16.5	7.986
BOD5	3.1	n=952, 903<RL	½ RL	16.5	425
TSS	0.7	n=955, 763<RL	½ RL	16.5	92
Phosphorus	0.2	n=956, 315<RL	½ RL	16.5	22.0

Pollutant	Domestic+ Commercial Contribution to POTW mg/L	Comment and Notes	RL Handling	Domestic plus Commercial Average Flow mgd	Calculated Domestic+Commercial Contribution lbs/Day
Arsenic	0.0091	n=15, 14<RL	½ RL	15.16	1.151
Cadmium	0.0012	n=15, 14<RL	½ RL	15.16	0.152
Chromium	0.0025	n=15, 14<RL	½ RL	15.16	0.316
Copper	0.0993	n=15, 0<RL	N/A	15.16	12.562
Lead	0.0045	n=15, 15<RL	½ RL	15.16	0.569
Mercury	0.000083	n=15, 11<RL	½ RL	15.16	0.011
Nickel	0.0035	n=15, 11<RL	½ RL	15.16	0.443
Selenium	0.0145	n=15, 13<RL	½ RL	15.16	1.834
Silver	0.0038	n=15, 15<MDL	½ RL	15.16	0.481
Zinc	0.218	n=15, 0<MDL	N/A	15.16	27.579
BOD5	273	n=15	N/A	15.16	34537
TSS	151	n=15	N/A	15.16	19103
Phosphorus	4.93	n=15	N/A	15.16	623.7

Sewage Sludge Pollutant	Maximum POTW Sludge to Disposal mg/kg Dry Weight
Arsenic	0.954
Cadmium	0.27
Chromium	2.8
Copper	130
Lead	1.6
Mercury	0.27
Nickel	2.3
Selenium	2.8
Silver	0.38
Zinc	140
BOD5	N/A
TSS	N/A
Phosphorus	N/A

Note: The POTW landfills sludge. The actual data provided for informational purposes only. Sludge meets TCLP and Paint-filter tests. No applicable sludge standards.

North Las Vegas Removal Efficiency Calculations POLLUTANT	MRE Mean Removal Efficiency %[a]	LIT Literature Removal Efficiency %	Source of Literature Removal Efficiency Data[b]	Enter the Name of the Removal Efficiency to be Used: MRE, or LIT	Final POTW Removal %
Arsenic[b]	20.0	53	EPA-8th Decile	LIT	53
Cadmium[b]	0	91	EPA-8th Decile	LIT	91
Chromium (Total) [b]	13.3	91	EPA-8th Decile	LIT	91
Copper[b]	84.6	95	EPA-8th Decile	LIT	95
Lead[b]	-52.9	76	EPA-8th Decile	LIT	76
Mercury[b]	-47.1	94	CWACS (n=28)	LIT	94
Nickel[b]	6.7	62	EPA-8th Decile	LIT	62
Selenium[b]	4.0	67	EPA-8th Decile	LIT	67
Silver[b]	-13.0	88	EPA-8th Decile	LIT	88
Zinc	75.8			MRE	75.8
BOD5	99.1			MRE	99.1
TSS	99.9			MRE	99.9
Phosphorus	98.1			MRE	98.1

(a) Removal Efficiency calculations based upon concentration.

(b) Default removal efficiencies were used for Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver and Zinc values due to be being reported <RL in all or most POTW influent and/or effluent measurements. Mercury default data was used because data generated by POTWs using Method 1631E show consistent removal of 90-95%. The City used a 94% removal efficiency for Mercury literature data from CWACS (n=28). In the case of the other pollutants, the 8th decile data from the EPA guidance for tertiary treatment was used.

North Las Vegas AHL Calculations Pollutant	POTW Design lbs/day	Acute WQS lbs/day	Chronic WQS lbs/day	Livestock lbs/day	Irrigation lbs/day	445A.199 State Existing Quality lbs/day	Most Stringent AHL for Common Stds lbs/day	Name of Most Stringent AHL
Arsenic		111.3791	49.1378	16.3793	32.7586		16.3793	Livestock
Cadmium		14.8833	1.3686		17.1073		1.3686	State Chronic WQS
Chromium (Total)		9859.4214	458.8164	1710.7250	171.0725		171.0725	Irrigation
Copper		159.2001	94.2267	1539.6525	615.8610		94.2267	State Chronic WQS
Lead		305.8776	11.9323	64.1522	3207.6094		11.9323	State Chronic WQS
Mercury		3.5925	1.9759	25.6609			1.9759	State Chronic WQS
Nickel		1394.7440	373.5922				68.2714	State Chronic WQS
Selenium		614.1998	68.2714		81.0343		9.3312	State Acute WQS
Silver		9.3312	23.3281	23.3281	9.3312		52.7331	State Acute WQS/Irrigation
Zinc		52.7331					247.0664	State WQS
BOD5	82566						82566	POTW Design
TSS	89445						89445	POTW Design
Phosphorus	1900					1655.1	1655.1	State Existing Quality

Pollutant	MAHL lbs/day	Controlling Criteria or Standard for MAHL	Safety Factor %[(a)]	MAHL minus Safety Factor lbs/day	Growth Factor for Residential, Com and Industrial %[(b)]	Minus Growth Factor	Subtract out Domestic+Commercial Loadings lbs/day	MAIL Maximum Available Industrial Loading lbs/day
Arsenic	16.3793	Livestock	10	14.7414	5	14.0043	12.8530	12.8530
Cadmium	1.3686	State Chronic WQS	10	1.2317	5	1.1701	1.0183	1.0183
Chromium (Total)	171.0725	Irrigation	10	153.9653	5	146.2670	145.9507	145.9507
Copper	94.2267	State Chronic WQS	10	84.8041	5	80.5639	68.0014	68.0014
Lead	11.9323	State Chronic WQS	10	10.7391	5	10.2021	9.6328	9.6328
Mercury	1.9759	State Chronic WQS	10	1.7783	5	1.6894	1.6789	1.6789
Nickel	68.2714	State Chronic WQS	10	61.4443	5	58.3721	57.9293	57.9293
Selenium	9.3312	State Acute WQS	10	8.3981	5	7.9782	6.1438	6.1438
Silver	52.7331	State Acute WQS/Irrigation	10	47.4598	5	45.0868	44.6061	44.6061
Zinc	247.0664	State WQS	10	222.3598	5	211.2418	183.6626	183.6626
BOD5	82566	POTW Design	5	78438	5	74516	39979	39979
TSS	89445	POTW Design	5	84973	5	80724	61621	61621
Phosphorus	1655.1	State Existing Quality	5	1572.4	5	1493.8	870.1	870.1

(a) A safety factor of 5% was used for BOD_5. TSS and Phosphorus due to the large number of monitoring results and the City's belief that the data is accurate.

(b) The growth factor in included due to the City's belief that the number of taps will increase in the next 5 years.

Pollutant	Final MAIL lbs/day	Expansion Factor (EF) **%**	MAIL-EF Factor Allowable Loading minus Expansion Factor lbs/day	MAHL lbs/day	Local Limits to be Adopted as (U)niform or (M)ass	Calculated SIU Limits	Units
Arsenic	12.8530	0	12.8530	16.3793	U	0.45	mg/L
Cadmium	1.0183	0	1.0183	1.3686	U	0.036	mg/L
Chromium	145.9507	0	145.9507	171.0725	U	5.10	mg/L
Copper	68.0014	50	34.0007	94.2267	U	1.19	mg/L
Lead	9.6328	40	5.7797	11.9323	U	0.20	mg/L
Mercury	1.6789	80	0.3358	1.9759	U	0.012	mg/L
Nickel	57.9293	40	34.7576	68.2714	U	1.21	mg/L
Selenium	6.1438	0	6.1438	9.3312	U	0.21	mg/L
Silver	44.6061	0	44.6061	52.7331	U	1.56	mg/L
Zinc	183.6626	0	183.6626	247.0664	U	6.4	mg/L
BOD5	39979	0	39979	82566	M	39979	lbs/day
TSS	61621	0	61621	89445	M	61621	lbs/day
Phosphorus	870.1	0	870.1	1655.1	M	870.1	lbs/day

(a) The expansion factor represents that portion of the MAIL that the POTW is setting aside for expansion of existing businesses or for new permitted businesses. This is done pollutant-by-pollutant and is at the discretion of the City.

J. Summary Pollutant Data (POTW Influent, Effluent, Domestic+Commercial)

The pollutants in the following table are as mg/L and total unless otherwise specified.

Samples taken September 2014-October 2014 and conventional pollutant samples taken January 2012 to December 2014. This data is used as Domestic+Commercial and is from the Southwest Water Reclamation Facility which contains no permitted industrial users. The total average flow for this POTW is 3.92 mgd.

INFLUENT - Pollutant	Average	Maximum	Minimum	Count	# <MDL
Flow	17.3	20.1	15.6	959	0
2,3,7,8-TCCD	0.000000001019	1.4E-09	7.67E-10	10	10
2-Butanone (MEK)	0.0037	0.0055	0.0027	3	0
3&4-Methylphenol	0.052	0.067	0.038	5	0
4-methyl-2-pentanone (MIBK)	0.0053	0.0053	0.0053	1	0
4-Methylphenol (p-Cresol)	0.047	0.067	0.034	7	0
Acetone	0.14	0.28	0.044	3	0
Ammonia	26	43	17	21	0
Ammonia from Conventionals	24	54	11	959	0
Antimony	0.00125	0.00125	0.00125	13	13
Arsenic, Total	0.0025	0.0029	0.002	19	18
Barium	0.14	0.16	0.12	6	0
Benzyl Alcohol	0.019	0.02	0.018	2	0
Beryllium	0.0005	0.001	0.0005	19	19
bis(2-ethylhexyl)phthalate	0.014	0.068	0.005	18	13
BOD5	311	490	190	21	0
BOD5 from Conventionals	348	740	120	955	0
Boron	0.3	0.3	0.2	11	0
Bromodichloromethane	0.0066	0.025	0.0025	19	15
Cadmium, Total	0.0006	0.0016	0.0005	19	17
Chlorodibromomethane	0.0032	0.0033	0.0031	2	0
Chloroform	0.011	0.03	0.0025	19	9
Chloromethane	0.0057	0.0057	0.0057	1	0
Chromium (VI)	0.00033	0.00033	0.00033	1	0
Chromium, Total	0.003	0.005	0.002	19	15
Copper, Total	0.151	0.21	0.089	19	0
Cyanide	0.011	0.025	0.002	19	17
Fluoride	0.54	0.94	0.05	9	4
Iron	1.13	2.4	0.47	11	0
Lead, Total	0.0017	0.005	0.001	19	16
Mercury, Total	0.000068	0.00014	0.00005	19	11
Molybdenum, Total	0.007	0.011	0.005	10	9

INFLUENT - Pollutant	Average	Maximum	Minimum	Count	# <MDL
Nickel, Total	0.006	0.014	0.005	19	17
Nitrate+Nitrite					0
N-Nitroso-dimethylamine	0.002003	0.005	4.7E-09	15	7
N-Nitroso-N-propylamine	0.010001	0.025	0.000000001	15	13
Oil and Grease	40	65	23	6	0
Phenol	0.012	0.016	0.01	7	3
Phosphorus	7.3	13	4	21	0
Phosphorus from Conventionals	8.6	24.0	0.3	959	0
Phosphorus - Ortho					0
Selenium, Total	0.0025	0.0028	0.0016	19	16
Silver, Total	0.0023	0.0025	0.0009	19	17
TDS	883	970	840	6	0
Thallium	0.0005	0.0005	0.0005	13	13
TKN	42	49	32	15	0
TKN from Conventionals	47	140	26.0	959	0
Total Inorganic Nitrogen					0
Total Phenolics	0.051	0.065	0.043	6	0
TSS	320	420	210	21	0
TSS from Conventionals	495	1700	57	959	0
Uranium	0.0025	0.0025	0.0025	11	11
Zinc, Total	0.24	0.34	0.005	19	1

EFFLUENT - Pollutant	Average	Maximum	Minimum	Count	# <MDL
Flow	16.50	20.80	13.80	959	0
2,3,7,8-TCCD	0.00000000071	9.74E-10	4.67E-10	10	10
2-Butanone (MEK)	0.0084	0.046	0.0025	8	6
3&4-Methylphenol	0.0146	0.045	0.00465	6	5
4-methyl-2-pentanone (MIBK)	0.0025	0.0025	0.0025	8	8
4-Methylphenol (p-Cresol)	0.0146	0.045	0.00465	6	5
Acetone	0.0419	0.2	0.0025	8	6
Ammonia	0.1842	0.53	0.07	22	0
Ammonia from Conventionals	0.19	1.80	0.02	958	3
Antimony	0.0013	0.00125	0.00125	13	13
Arsenic, Total	0.0020	0.0025	0.0007	20	18
Barium	0.0757	0.093	0.066	7	0
Benzyl Alcohol					0
Beryllium	0.0005	0.001	0.0005	20	20
bis(2-ethylhexyl)phthalate	0.0096	0.0665	0.00465	18	17
BOD5	1.8	3	1	22	22
BOD from Conventionals	3.09	14.00	2.00	955	903
Boron	0.2691	0.32	0.24	11	0
Bromodichloromethane	0.0084	0.014	0.0025	20	5
Cadmium, Total	0.0006	0.001	0.0005	20	20
Chlorodibromomethane	0.0027	0.0032	0.0025	4	2
Chloroform	0.0369	0.34	0.003	20	0
Chloromethane	0.0025	0.0025	0.0025	8	8
Chromium(VI)					0
Chromium, Total	0.0026	0.005	0.0025	20	20
Copper, Total	0.0232	0.025	0.006	20	18
Cyanide	0.0077	0.025	0.0025	20	13
Fluoride	0.5767	0.9	0.1	9	3
Iron	0.0442	0.08	0.028	11	0
Lead, Total	0.0026	0.005	0.00125	20	20
Mercury, Total	0.0001	0.00005	0.00005	17	17
Molybdenum, Total	0.0065	0.01	0.005	10	10
Nickel	0.0056	0.011	0.005	20	19

EFFLUENT - Pollutant	Average	Maximum	Minimum	Count	# <MDL
Nitrate+Nitrite	4.8923	6	3.8	13	0
Nitrate+Nitrite from Conventionals	4.93	6.3	3.5	138	0
N-Nitrosodimethylamine	0.0098	0.0265	9.4E-09	16	8
N-Nitroso-N-propylamine	0.0031	0.025	0.000001	16	11
Oil and Grease	1.1286	1.7	0.7	7	0
Phenol	0.0120	0.012	0.012	1	0
Phosphorus	0.1559	0.78	0.05	22	5
Phosphorus from Conventionals	0.16	5.0	0.1	959	315
Phosphorus - Ortho, Dissolved	0.1313	0.38	0.05	15	4
Phosphorus - Ortho, Dissolved from Conventionals	0.15	5.9	0.1	958	344
Selenium, Total	0.0024	0.0025	0.0014	19	18
Silver, Total	0.0026	0.005	0.0025	20	20
TDS	886.5000	980	810	20	0
TDS from Conventionals	901	1100	440	140	0
Thallium	0.0005	0.0005	0.0005	13	13
TKN	0.9692	1.6	0.52	13	0
TKN from Conventionals	0.99	1.9	0.35	137	0
Total Inorganic Nitrogen	5.0846	6.2	4.3	13	0
Total Inorganic Nitrogen from Conventionals	5.10	6.4	4.0	138	0
Total Phenolics					0
TSS	0.9773	2	0.5	22	9
TSS from Conventionals	0.67	5.0	0.5	958	763
Uranium	0.0025	0.0025	0.0025	11	11
Zinc, Total	0.0580	0.088	0.005	20	1

Domestic+Commercial - Pollutant	Average	Maximum	Minimum	Count	# <MDL
Ammonia	27	29	26	7	0
Arsenic, Total	0.0091	0.015	0.0022	15	14
Barium	0.1329	0.16	0.12	7	0
Beryllium	0.0005	0.0005	0.0005	7	7
Bis (2-ethylhexyl) phthalate	0.0342	0.07	0.0047	7	3
BOD5	273	570	190	15	0
Bromodichloromethane	0.0056	0.014	0.0025	7	4
Cadmium, Total	0.0012	0.0023	0.0005	15	14
Chloroform	0.0165	0.027	0.0029	6	0
Chromium, Total	0.0025	0.0026	0.0025	15	14
Copper, Total	0.0993	0.17	0.07	15	0
Cyanide	0.0183	0.025	0.0004	7	5
Diethylphthalate	0.0116	0.066	0.0025	7	6
Lead, Total	0.0045	0.00725	0.00125	15	15
Mercury, Total	0.000083	0.0001	0.00005	15	11
Nickel, Total	0.0035	0.009	0.0025	15	11
Oil and Grease	37.1429	51	25	7	0
Phenol	0.0103	0.012	0.01	7	5
Phenols, Total	0.0443	0.054	0.024	7	0
Phosphorus	4.9333	6	3.9	15	0
Selenium, Total	0.0145	0.025	0.002	15	13
Silver, Total	0.0038	0.005	0.0025	15	15
TDS	807.1	890	760	7	0
TSS	151	236	98	15	0
Zinc, Total	0.2180	0.41	0.15	15	0
2-Butanone (MEK)	0.0034	0.0054	0.0025	7	4
Acetone	0.0612	0.4	0.0025	7	5
Chlorodibromomethane	0.0026	0.0031	0.0025	7	5
3&4 Methylphenol	0.0588	0.1	0.0025	7	1
4-Methylphenol	0.0699	0.1	0.04	7	0

K. Analytical and Sampling Methods

1. Analytical Methods and Sample Preservation

All wastewater samples were collected, preserved and analyzed using methods approved pursuant to 40 CFR Part 136 and 40 CFR Part 403, Appendix E and were of such quality as to be legally defensible. The City uses a mix of in-house and external support for analytical work performed under its pretreatment program.

2. Sample Types

POTW influent and effluent samples were collected as required by the NPDES Permit. If sampling for oil and grease, cyanide, pH, sulfides, phenols or volatile organic compounds, the City would use grab samples.

3. Example Liquid Matrix Sampling Criteria

Pollutant	Sample Type	Sample Hold Time	Sample Preservation
Arsenic	24 hr Composite	6 Months	HNO_3 to pH <2
Biochemical Oxygen Demand (BOD5)	24 hr Composite	48 Hours	Cool to 6ºC
Cadmium	24 hr Composite	6 Months	HNO_3 to pH <2
Chromium (total)	24 hr Composite	6 Months	HNO_3 to pH <2
Copper	24 hr Composite	6 Months	HNO_3 to pH <2
Cyanide	Grab (for Pretreatment Required Sampling)	14 Days	Cool to 6ºC, 1:1 NaOH to pH >12
Lead	24 hr Composite	6 Months	HNO_3 to pH <2
Mercury	Grab	28 Days 90 Days	HNO_3 to pH <2 5 mL/L 12N HCl or 5 mL/L BrCl
Molybdenum	24 hr Composite	6 Months	HNO_3 to pH <2
Nickel	24 hr Composite	6 Months	HNO_3 to pH <2
Phosphorus	Grab	28 days	Cool to 6ºC, 1:1 H_2SO_4 to pH <2
Selenium	24 hr Composite	6 Months	Cool to 6ºC, 1:1 HNO_3 to pH <2
Silver	24 hr Composite	6 Months	HNO_3 to pH <2
Total Suspended Solids (TSS)	24 hr Composite	7 Days	Cool to 6ºC
Zinc	24 hr Composite	6 Months	HNO_3 to pH <2

4. Chain of Custody (COC)

All samples included a COC for sample identification (sample location) and tracking. COC information and records are maintained at the Water Reclamation Facility and the City. Quality Assurance/Quality Control for sampling is provided with each sample report by the contract laboratory.

L. Recordkeeping

All records that are the basis for the local limits developed shall be maintained for at least three years beyond when the local limits are no longer implemented and enforced. The records will be kept at the Water Reclamation Facility as a hardcopy and/or in electronic (.pdf) format.

ATTACHMENT 1

CLARIFCATION OF ADMINISTRATIVE ORDER REQUIREMENTS FOR LOCAL LIMITS BASED UPON EPA GUIDANCE IN THE ORDER

From: Curt McCormick, CWACS
To: josilo.michelle@epa.gov
Cc: Dave Commons
Subject: Questions on Local Limits Related to the AO issued by Region 9 to North Las Vegas (NV0023647)
Date: Friday, August 28, 2015 10:43:53 AM

Dear Ms. Josilo,

I have been contracted with the City to complete a local limits evaluation and the City has authorized me to communicate directly with you on their behalf.

I have been reviewing the Administrative Order (AO) issued to the City of North Las Vegas on June 26, 2015, by your office. As I was perusing the document, I noted that there was guidance that was included as enforceable requirements in the AO. I had not seen this before and some of the language appears to conflict with other sections of the AO and the 2004 EPA Local Limits guidance.

Specifically, paragraph I.B.(1),vii. of the Order requires the City to explain how it intends to use data that is below detection (reporting) limits and submit that explanation by November 1, 2015. The City is using the 2004 EPA Local Limits Guidance document approach. However, EPA continues on by further defining how the EPA will handle this data.

In Order Section, I.B.(2),ii., EPA is specifying how the City must use undefined guidance regarding data and data handling that is not consistent with the 2004 EPA Local Limits Guidance (nor the previous EPA local limits guidance). In fact, these specific requirements were not contemplated during development of the 2004 EPA guidance.

The City is on a very short compliance schedule to complete a local limits evaluation. Please provide the guidance or technical basis for the items in paragraph I.B.(2),ii. so the City can fully assess the impact of these additional requirements on the City's ability to produce legally and technically-based local limits if the City significantly deviates from EPA technical guidance.

The 2004 Local Limits Guidance was intended as a framework for one approach to developing local limits. The City believes that this EPA guidance is a good framework. Specifically, the City believes EPA has erred when including specific requirements:

I.B.(2),ii.(a): Minimum # of samples specified in the AO is much lower than recommended by the guidance and EPA/states. The City will be using the recommended number of samples or higher.

I.B.(2),ii.(b): Rejecting sample results because a pollutant is <MDL in influent and effluent does not invalidate the data. the <RL data is very important in providing information on the possible concentration of a pollutant in the wastewater. This is why EPA recommended ½ RL (where the RL is appropriate). Often, POTWs will use ½ the Lowest Measured Value in the data set for <RL data if >50% of the measurements are above detection. Data is not used when the data is not statistically valid. See discussion on safety factor in the 2004 guidance.

I.B.(2),ii.(c): Please provide the technical basis for this requirement. It is very common for POTW influent to have a higher RL than the POTW effluent due to the quality of the

wastewater. In fact, it is not usual for 1631E Mercury analyses and other low level RL pollutants will have a better RL in the effluent (cleaner) than the POTW influent (much more potential interferences). It is understood that using 1/2 the RL this could result in a higher estimated removal efficiency. However, where the removal efficiency is outside the expected value identified by EPA, then a default removal efficiency would be used. Again, this unique approach is being required where the concentrations of a contaminant are not detectable.

I.B.(2),ii.(d): As a note, for Mercury, we know that the default removal efficiency is 90-95% based upon data generated by some POTWs using Method 1631E. The median value was included in the EPA guidance before 1631 data was available to EPA.

Other comments:

I.B.(1), viii.: The City has not experienced inhibition as defined at 40 CFR Section 403.3(k) nor as defined in the AO. As allowed for in the 2004 Local Limits guidance, the City will not be further evaluating inhibition or doing site-specific tests to try to identify POTW specific pollutant inhibition concentrations for pollutants. The City has not identified any pollutants that would be Pollutants of Concern for inhibition. *Note: The range of inhibition values in the EPA guidance were not peer reviewed, had wide ranges of concentration and were intended to provide general information. In the 2004 EPA guidance, the Agency expected that POTWs addressing inhibition would develop inhibition values specific to their POTWs.*

I.B.(2), iii.: The City intends to establish local limits for Significant Industrial Users (Class I Industrial Users). This would mean that commercial user data would be subtracted with the domestic loading during the calculations. This is explicitly allowed for in 40 CFR Section 403.18(b)(2). EPA's AO language would seem to prohibit this.

As stated above, EPA has required the City to develop local limits in an atypically short timeframe. Your response to the requests for information and technical information ASAP is appreciated by the City so the compliance dates can be met.

Please feel free to contact me with any questions.

Best Regards,

Curt

CWA Consulting Services
www.POTW.com

Curt McCormick
Owner, CWACS

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www.POTW.com

Providing Pretreatment Program Support to Municipalities

ATTACHMENT 2

EXAMPLE CALCULATION AND FORMULAS

Process and Formulas used in Calculating Allowable Headworks Loadings (from 2004 EPA Guidance) – Zinc Example

1. Applicable Allowable Headworks Loadings (AHLs)

   Water Quality: $(8.345*(WQS*(Q_{recH2O} + Q_{POTW})-(Q_{recH2O} * C_{stream})))/(1-(R_{POTW}/100))$

WQS: Applicable Water Quality Standard (mg/L): Acute or Chronic as appropriate (see Page 17)
Q_{recH2O}: Receiving Water Low Flow (mgd): Acute or Chronic as appropriate. 0 mgd.
Q_{POTW}: POTW flow for local limits (mgd)
C_{stream}: Upstream Receiving Water Concentration (mg/L) if specified by State. 0 mgd.
R_{POTW}: Removal Efficiency for POTW (%). Typically, the Mean Removal Efficiency is used.

Water Quality (Acute) = (8.345 * 0.3878 mg/L * 18.45 mgd)))/(1-75.8/100)
= 246.7 lbs/day (slight difference due to rounding)

Water Quality Chronic = (8.345 * 0.3878 mg/L * 18.45 mgd)))/(1-75.8/100)
= 246.7 lbs/day (slight difference due to rounding)

Livestock WQS = (8.345 * 25 mg/L*18.45 mgd)))/(1-75.8/100)
= 15,905.5 lbs/day lbs/day (slight difference due to rounding)

Irrigation WQS = (8.345 * 2.0 mg/L*18.45 mgd)))/(1-75.8/100)
= 1,272.4 lbs/day (slight difference due to rounding)

2. Determine the Maximum Allowable Industrial Loading (MAIL)

   MAIL = MAHL * 1-SF/100 – 1-GF/100 - Domestic+Commercial Loading

   MAHL: State Acute/Chronic WQS AHL = 247.0664 lbs/day (taken from actual local limits AHL calculations).
   Safety Factor (SF) = 10%
   Growth Factor (GF) = 5%

   MAIL = (((247.0664 * 0.9) *0.95) – 27.579) = 183.66 lbs/day

3. Adjusting the MAIL for IU growth (New IUs and expansion of existing IUs) – Expansion Factor (% set aside). POTW discretionary. The City is not adopting an expansion factor for Zinc.

   Adjusted MAIL = MAIL * 1-(Expansion Factor %)/100) = Adjusted MAIL (EPA approves MAIL, not this adjusted MAIL)

Adjusted MAIL = 183.66 lbs/day * (1-(0/100) = 183.66 lbs/day

4. Calculate the Uniform Concentration Local Limit (mg/L)

(Adjusted MAIL/(SIU + Permitted non-SIU Flow (mgd) * 8.345))

183.66 lbs/day / (3.432 mgd * 8.345) = 6.4 mg/L

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